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Australohydnum dregeanum new to Italy

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Abstract — We report on the first finding in Italy (and the third in Europe) of *Australohydnum dregeanum*. A detailed description of the macro- and micromorphological features, the ecological data, and some taxonomic remarks concerning this taxon are provided. The bluish tint in the centre of the hymenophoral surface and the non-cystidiform aspect of the marginal hyphae are previously undescribed characters.

Key words — *Corticiaceae*, *Phanerochaetaceae*, wood-inhabiting fungi, urban biodiversity

Introduction

Wood decay fungi are widely distributed in forest ecosystems of Italy. Their importance is highlighted by the fundamental role they play in the decomposition of woody debris (Saitta et al. 2011) and by the high level of diversity reported from broad-leaved and conifer woods (Venturella et al. 2011). Although in recent years the mycological exploration in forest ecosystems of Italy has definitely increased, it is still possible to find infrequent and/or rare lignicolous species growing as saprotrophs or parasites on fallen trunks, branches, stumps, etc. (Saitta & Melo 2012). Such is the case with *Australohydnum dregeanum*, recently collected and identified as new to Italy (a third record from Europe).

Three species are included in *Australohydnum* Jülich (*Phanerochaetaceae*): *A. castaneum*, *A. dregeanum*, and *A. griseofuscescens*; we follow here the synonymy outlined by Melo & Hjortstam (2002), which treats *A. dregeanum* and *A. griseofuscescens* as conspecific.

Materials & methods

The basidiomata were collected inside the "Parco della Favorita", belonging to the Natural Reserve of "Monte Pellegrino", a wide green area within the city of Palermo

(Sicily). The macroscopic identification was carried out on fresh basidiomata while the microscopic features were observed under a Leica microscope DMLB on dried specimens using a 0.3% KOH solution and cotton blue in lactic acid. The spore measurements were based on 50 observations carried out on fresh and dried basidiomata. The nomenclature follows MycoBank (http://www.mycobank.org), and the description of *A. dregeanum* is based on the authors' observation of the collected basidiomata. The specimens (SAF 001, SAF 002) are kept in the fungal dried reference collection of the mycological herbarium (under establishment) of the new Department of Agricultural and Forest Sciences (activated by the University of Palermo on 2014).

Taxonomy

Australohydnum dregeanum (Berk.) Hjortstam & Ryvarden,
Syn. Fung. 4: 61. 1990. Pl. 1

≡ *Corticium dregeanum* Berk., London J. Bot. 5: 3. 1846.

≡ *Lopharia dregeana* (Berk.) P.H.B. Talbot, Bothalia 6: 57. 1951.

= *Hydnum griseofuscescens* Reichardt, Verh. Zool.-Bot. Ges. Wien 16: 374. 1866.

≡ *Austrohydnum griseofuscecens* (Reichardt) Jülich, Persoonia 10: 138. 1978.

= *Irpex vellereus* Berk. & Broome, J. Linn. Soc., Bot. 14: 61. 1873.

≡ *Oxyporus vellereus* (Berk. & Broome) A. Roy & A.B. De, J. Mycopathol. Res. 36: 41. 1998.

= *Irpex purpureus* Yasuda ex Lloyd, Mycological Notes 50: 715. 1917.

Basidiomata annual, resupinate to effuse-reflexed, forming patches up to 5 cm wide, and laterally confluent and effused ≤15 cm, cracked when dried. The hymenial surface is bluish in the center when fresh, gradually lilac to the margin; brownish when dried, with some areas soft lilac; more or less warted, warts ≤2.5 mm long, differently anastomosed. Margin evident, sterile, distinctly white, slightly tomentose ≤4 mm broad. The basidiomata can be easily separated from the substrate only when dried. Flesh thin, white.

Hyphal system pseudodimitic. Hyphae simple septate. Hymenial hyphae prevalently thin-walled. Subicular hyphae thick-walled, 4–5.5 µm wide. Marginal hyphae 4–5 µm wide, hyaline, more or less thick-walled, frequently branched, sometimes encrusted at the apex. Basidia hyaline, (22–)25–35(–40) µm long, sinuous-clavate, simple septate at the base, with sterigmata 3.5–4.5 µm long. Spores (4.5–)4.8–5.3(–5.8) 2.5–2.8(–3.2) µm, ellipsoid, hyaline, smooth, thin-walled, inamyloid, cyanophilous. Skeletocystidia very abundant, cylindrical ≤125 µm long and 4.5–6.5(–7) wide, apices obtuse, more or less encrusted, originating from pseudoskeletal hyphae and rarely projecting beyond the hymenium ≤15 µm, incrusted part 25–45 µm.

Specimens examined: **ITALY, Sicily**, Palermo, Parco della Favorita, 38.15457°N 13.34628°E, 44 m a.s.l., Mediterranean maquis with scattered plants of *Eucalyptus sideroxylon* A. Cunn. ex Woolls, on fallen trunk of *E. sideroxylon*, 4 Apr 2012, coll. A. Saitta (SAF 001); 5 Oct 2012, coll. A. Saitta (SAF 002).

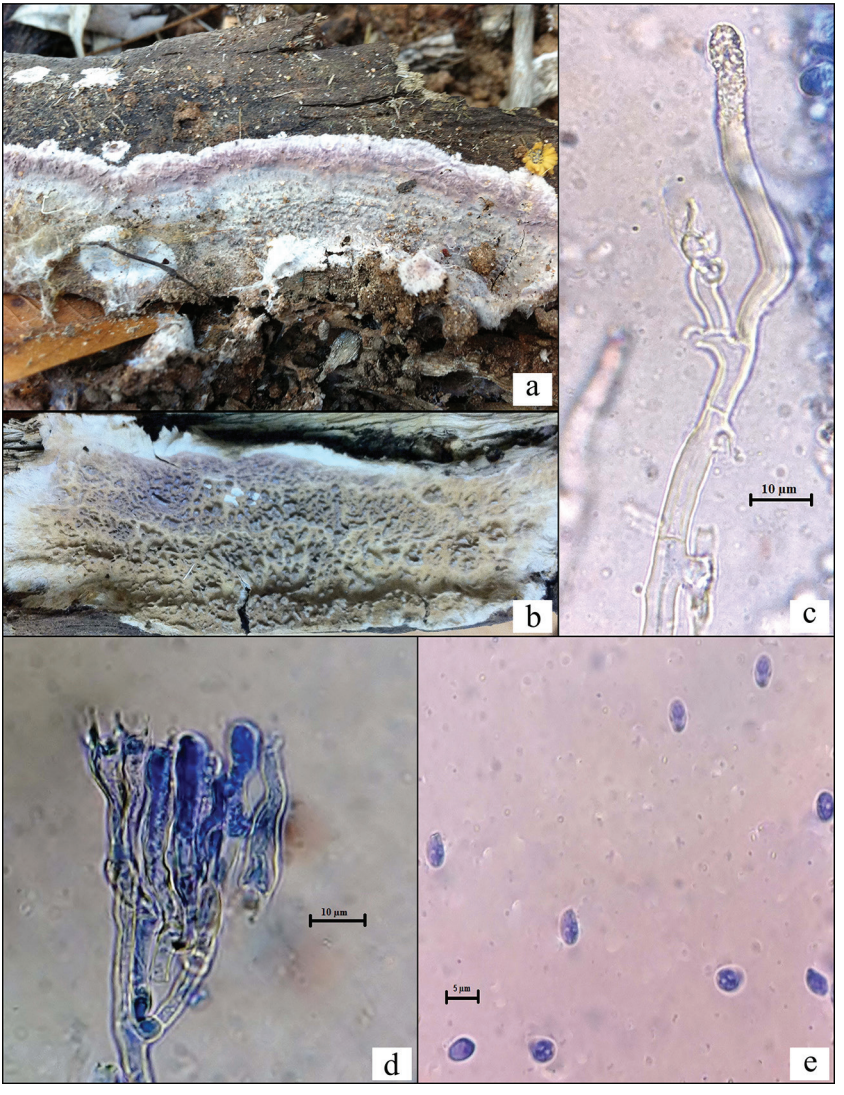

Plate 1. *Australohydnum dregeanum* (SAF 002). a) Fresh basidioma; b) Dried basidioma; c) Skeletocystidium; d) Basidia; e) Spores.

Discussion

Australohydnum dregeanum was collected on fallen trunk of *E. sideroxylon* in the clearings of a Mediteranean maquis. The vegetation is also characterized

by scattered plants and shrubs of *Quercus ilex* L., *Ulmus minor* Mill., and *Pistacia lentiscus* L. mixed with conifers, *Cedrus atlantica* (Endl.) Manetti ex Carrière, *C. deodara* (Roxb. ex D. Don) G. Don, and *Cupressus sempervirens* L.

Eucalyptus sideroxylon was introduced in reforestations approximately 60 years ago, when the local Department of Forestry began an intense planting of exotic species on the Sicilian territory. *Eucalyptus* wood is a new substrate, and the Mediterranean maquis is a new habitat for *A. dregeanum* in Europe. Melo & Hjortstam (2002) reported *A. dreageanum* on fallen branches of *Olea europaea* L. var. *europaea* in a holm oak forest (*Quercus rotundifolia* Lam.) with a small abandoned olive grove and lusitanic oaks (*Q. faginea* Lam.).

Owing to the presence of abundant encrusted skeletocystidia and simple septate generative hyphae, *A. dregeanum* is rather easily identified. The morphological features of the *A. dregeanum* collected in Sicily are similar to those reported by Melo & Hjortstam (2002) for specimens collected in Portugal. The main difference in the features of the Sicilian specimens are the bluish tint in the centre of hymenophoral surface (not reported in any previous description) and the non-cystidiform aspect of the marginal hyphae. The bluish tint in the centre of hymenophoral surface is clearly visible in the fresh specimens.

The genus *Australohydnum* in Europe includes only one taxon, *A. dregeanum*, which was collected in Portugal by Melo & Hjortstam (2002) as new to Europe. The species is also known from Australia (Reichardt 1866, as *Hydnum griseofuscescens*; Reid 1956, as *Irpex vellereus*), New Zealand (Buchanan & Ryvarden 2000), Japan (Lloyd 1917, as *Irpex purpureus*), South Korea (Lim et al. 2005), Sri Lanka (Berkeley & Broome 1873, as *Corticium dregeanum*), India (De 1998, as *Oxyporus vellereus*; Tiwari et al. 2010], South Africa (Berkeley 1846, as *Corticium dregeanum*; Talbot 1951, as *Lopharia dregeana*), Israel (Tura et al. 2010), and Russia (Zmitrovich et al. 2006).

Lim & Jungh (2003) described a new species, *Irpex hydnoides* Y.W. Lim & H.S. Jung, microscopically quite similar to *A. dregeanum* but which has a different hymenophoral configuration. They analyses did not place *Irpex vellereus* within the *I. hydnoides–I. lacteus* clade but grouped it instead (with 100% support) with a sequence of *A. dregeanum*, supporting the synonymy of *A. dregeanum* and *I. vellereus*. Their *A. dregeanum–I. vellereus* clade was sister to the group that included members of the genus *Phanerochaete*.

The presence of *A. dregeanum* in Italy is noteworthy, considering its fragmented European distribution. This new finding also supports Sicily as a "hot spot" of biodiversity for aphyllophoroid fungi (Saitta et al. 2011).

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